



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,916	03/26/2004	Toshihiro Kinoshita	50024-031	6747
7590 10/16/2008 MCDERMOTT, WILL & EMERY 600 13th Street, N.W. Washington, DC 20005-3096				
EXAMINER MIDKIFF, ANASTASIA				
ART UNIT		PAPER NUMBER		
2882				
MAIL DATE		DELIVERY MODE		
10/16/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/809,916

**Applicant(s)**

KINOSHITA, TOSHIHIRO

**Examiner**

ANASTASIA MIDKIFF

**Art Unit**

2882

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 10-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 07/24/08 (2pgs)
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication to Kubota et al. (US 2002/0113241 A1), in view of article to Yu, et al. (15 February 2001).

With respect to Claims 1 and 2, Kubota et al. teach an organic electroluminescent device (Paragraphs 99-100) comprising in this order:

- a hole injection electrode (Paragraph 100);
- a first hole injection layer having a property of absorbing not less than 10% of ultraviolet light having a wavelength shorter than 380 nm, and including a phthalocyanine-based compound (Paragraph 104);
- a second hole injection layer (Paragraph 100) including a fluorocarbon (Paragraph 146);
- a light emitting layer (Paragraph 100); and
- an electron injection electrode (Paragraph 100), formed directly on the light emitting layer (Paragraph 111).

Kubota et al. do not specifically teach copper as the metal within the phthalocyanine-based compound.

Yu teaches copper phthalocyanine (CuPc) as the hole-injection layer in an organic electroluminescent device, wherein the CuPc enhances the injection of holes in the layer (Abstract, Page 2343 Column 1 Lines 11-14, and Page 2347 Column 1 Line 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ copper, as suggested by Yu, as the metal in the phthalocyanine compound of Kubota et al., to take advantage of the hole injection enhancing properties of CuPc, thereby achieving high electroluminescence performance with lower driving voltage necessary and higher efficiency in the device.

With respect to Claims 10-13, Kubota et al. further teach that:

- said first hole injection layer has a thickness greater than 5 nm and less than 15 nm (Paragraph 150, Line 2); and,
- said second hole injection layer has a thickness greater than 0.5 nm and less than 3 nm (Paragraph 150, Line 3).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al., in view of article to Yu, et al., and further in view of U.S. Patent to Pai et al. (US 4,759,993).

With respect to Claim 14, Kubota et al. teach a method of manufacturing an organic electroluminescent device (Paragraphs 99-100), comprising the steps of:

- forming a hole injection electrode (Paragraph 100);

- forming a first hole injection layer on the hole injection electrode, said first hole injection layer having a property of absorbing not less than 10% of ultraviolet light having a wavelength shorter than 380 nm, and including a phthalocyanine-based compound (Paragraph 104);
- forming a second hole injection layer on the first hole injection layer by vacuum deposition (Paragraph 100), said second hole injection layer including a fluorocarbon (Paragraph 146);
- forming a light emitting layer above the second hole injection layer (Paragraph 100); and
- forming an electron injection electrode (Paragraph 100) directly on the light emitting layer (Paragraph 111).

Kubota et al. do not teach that said vacuum deposition is a plasma chemical vapor deposition, or that copper is the metal within the phthalocyanine-based compound.

Yu teaches copper phthalocyanine (CuPc) as the hole-injection layer in an organic electroluminescent device, wherein the CuPc enhances the injection of holes in the layer (Abstract, Page 2343 Column 1 Lines 11-14, and Page 2347 Column 1 Line 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ copper, as suggested by Yu, as the metal in the phthalocyanine compound of Kubota et al., to take advantage of the hole injection enhancing properties

of CuPc, thereby achieving high electroluminescence performance with lower driving voltage necessary and higher efficiency in the device.

Yu is silent with respect to the deposition process.

Pai et al. teach that plasma chemical vapor deposition is a vacuum deposition process that provides a highly adherent, corrosion resistant coating with low cost apparatus and methods (Column 3, Lines 7-21).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ plasma chemical vapor deposition, as suggested by Pai et al., as the vacuum deposition process in the method of Kubota and Yu et al., since plasma vapor deposition provides strong, durable, corrosion-resistant coatings at a low cost, as suggested by Pai et al. (Column 3, Lines 7-21).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 2, and 10-14 have been considered but are moot in view of the new ground(s) of rejection, said new grounds dealing only with the subject matter that was amended in to the independent claims in the Applicant Amendment filed 25 June 2008.

However, one issue remains with respect to the Kubota reference.

With respect to Kubota, the Applicant asserts that Kubota does not teach forming the electron injection electrode directly on the light emitting layer, since Kubota teaches a hole injecting layer and a hole transporting layer between said electron injection electrode and said light emitting layer. The examiner respectfully disagrees.

Kubota teaches an embodiment wherein the hole injecting layer and hole transporting layer are either omitted or integrated with the light emitting layer, so that the electron injecting electrode is then directly on the light emitting layer (Paragraph 111).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **ANASTASIA MIDKIFF** whose telephone number is (571)272-5053. The examiner can normally be reached on **M-F 7-4**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. M./  
Examiner, Art Unit 2882  
10/11/08

/Edward J Glick/  
Supervisory Patent Examiner, Art Unit 2882